



Levels of Awareness/Non Awareness on the Incidences of Cervical Cancer Among Patients Attending Oncology Clinic at the National Hospital Abuja FCT, Nigeria

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Abstract

Introduction: Screening for cervical cancer was conducted among patients attending Histology and Oncology departments at the National Hospital Abuja Nigeria. Our aim principally was to determine the incidence of cervical cancer among female patients aged forty years and above. At least to gain a fair insight into the cancer cases responding positively to clinical interventions in terms of vaccination.

Methods: Study design- This is a longitudinal and prospective study in which cervical samples were collected and processed from a cohort of female patients aged forty years and above attending histology and oncology departments at the National Hospital Abuja FCT.

Results: Histologically processed Cervical samples cancerous were fewer than those that were not cancerous among the female patients aged 40 years and above attending oncology clinic at the National Hospital Abuja, Nigeria ($P < 0.05$). Likewise Level of non awareness of knowledge on cervical cancer is significantly lower than awareness level among patients attending oncology clinics at 95% confidence limits ($P < 0.05$).

Conclusion: This clearly showed that cervical cancer incidence cases among female attendee oncology patients aged 40 years and above is on alarming and geometric increase. Although the work is limited by the fact that it was hospital based research!. Despite the unavoidable bias the study corroborated other qualitative global cervical cancer reports from other studies examined [1-7]. The fact remains that the global reduction prompt juvenile women vaccine administration is producing sharp positive reduction in even though Nigeria is still lagging behind in the pursuit of this highly welcoming trend as far as cervical cancer cases are concerned.

Keywords: Population; Cancer; Nigeria

Introduction

Population-based data on cancer stage are vital for monitoring screening and early detection programmes and planning cancer control activities. In this study, we focused on a year distributions and incidence trends of breast and cervical cancer given their high contributions to cancer burden and frequent inadequate screening practices and interventions particularly in Nigeria. Our findings more than adequately justifies the early HPV Vaccination to young ladies. The yearly incidence of breast cancer is still very high. Nigerian government had tried commendable efforts to curb this rise in breast cancer however their laudable efforts are often compromised by the ministries supervising the administration of the chemotherapy to the patients of this dreadful disease- Cancer according to the popular adage – “has no face until either a person or somebody very close to him/her falls a victim” We looked at the level of awareness of knowledge about breast cancer among oncology clinic attendees at the National hospital Abuja. This was observed to be very low compared to those that had knowledge awareness of breast cancer. We also compared the breast cancer cases among these group of patients and those that were free of breast cancer. Again the number of those having cancer was very high when compared with those that had no cancer. Advancing the quality of cancer registry data and strengthening the role of such data in cancer control will be critical for planning, monitoring, and evaluating progress. In other parts of the world, Breast cancer incidence in the newly independent states of the former Soviet Union is generally lower than in European countries, with estimated age-standardised rates (world standard population) ranging from 19.5 cases per 100 000 population (Tajikistan) to 57.5 cases per 100 000 population (Georgia) in 2020, while mortality is similar or even higher (from 8.0 cases per 100 000 population in Tajikistan to 23.5 cases per 100 000 population in Georgia) [1]. The dispensary system, which includes regular clinical breast examinations for women of a broad age range, remains intensively practiced in some newly independent states of the former Soviet Union (e.g., Belarus), but has been practically withdrawn in others, such as Georgia and Kyrgyzstan (WHO, unpublished). According to the WHO Country Capacity Survey 2019 [8], most newly independent states of the former Soviet Union have mammography

screening programmes, but overall coverage is low (mostly <50%), and screening is usually offered on an opportunistic basis with sub-optimal quality assurance. The target age includes those aged 50–69 years in seven countries where mammography screening is available, but extends to women aged 40–49 years or younger in Georgia, Kazakhstan, Russian Federation, and Turkmenistan [3].

Compared with other European countries, newly independent states of the former Soviet Union have high cervical cancer incidence (age-standardised rate >15.0 per 100 000 population in Kazakhstan and Kyrgyzstan, and 16.3 per 100 000 population in Moldova, compared with 7.0 per 100 000 population in western Europe, according to GLOBOCAN 2020 estimates) [1]. This high incidence is mainly attributed to insufficient organized screening programmes and inadequate diagnostic capacity [3]. Although free-of-charge annual cervical screening is available for women of reproductive age, the quality of cytology is frequently poor. In the former Soviet Union, cervical smears were stained by Romanowski-Giemsa rather than Papanicolaou staining. Even though this practice is not evidence-based, it remains common in the region.

The aim of this study was to analyse stage-specific distributions and changes over time in breast cancer and cervical cancer incidence among patients attending oncology and histology departments at the National Hospital, Abuja in Nigeria.

Literature Review

Cervical Cancer incidence/awareness in Nigeria

Cancer awareness creation is a fundamental step in the cancer control program. It is the bedrock on which other interventions are built. The level of awareness in the country is generally poor, which varies depending on the population studied. In a cross-sectional study across Nigeria's geopolitical zones using the UK Cancer Awareness Measure (CAM), only 32.7% of women have heard of cervical cancer [10]. Similarly, a 12.8% awareness rate was reported among urban slums in Lagos [11]. Though some studies reported a higher awareness rate, an interrogation of knowledge levels on the risk factors and preventive measures revealed a low level of knowledge [8,9]. More so, the high mortality associated with late case presentation gives the community a false perception of cancer

being incurable, which leads to a vicious cycle of late presentation, a high death rate, and distrust of orthodox care [12].

Nigeria government policies on cervical cancer

The first policy document on cancer control in Nigeria was the National Cancer Control Plan (NCCP) 2008–2013, which had most of its goals unmet. The 2018-2022 NCCP is currently in its final year of implementation with similar unmet goals [13]. For example, its cervical cancer-related goals of achieving 90% coverage for Human Papilloma Virus (HPV) vaccine coverage, among the eligible populations are unmet as the introduction of the HPV vaccine into the NPI has yet to take off. Furthermore, despite the target of screening more than half of the eligible population by 2022, which was based on the establishment of a nationwide routine screening program, cervical cancer screening remains opportunistic. While the NCCP is generic for all cancers, the federal ministry of health developed a national strategic plan prevention and control of cancer of the cervix in Nigeria for 2017-2021 [14]. The strategic plan focused on HPV mass immunization campaigns, a “screen and treat’ approach, establishing and maintaining a treatment referral network, palliative care, mass mobilization, and monitoring and evaluation. The goals set include immunizing 80% of girls aged 9-13 years with the HPV vaccine by 2020, increasing screening coverage of eligible women by 80% by 2020, and providing adequate and effective treatment of precancerous lesions for 100% of

detected cases; however, none of these targets were met at its expiration [15]. A review process is currently ongoing and is expected to culminate in the development of a 5-year strategic plan. From the foregoing, it is obvious the Nigerian government has a laudable plan for cervical cancer prevention and control, what is currently lacking is implementation. A cost review of the 2017–2021 strategic plan by the WHO team and other stakeholders will help make subsequent plans feasible and affordable [16].

HPV vaccination in Nigeria

HPV vaccination is a key intervention in the WHO 90-70-90, with an expected prevention of 61 million cases over the next century. Since its introduction in 2007, there has been a progressive upscaling of vaccination into various national programs on immunization, especially through the GAVI support program. Table 1 shows the types of HPV vaccines and types of HPV covered from 2007–2014.

Several failed timelines have been given by the National Primary Health Care Development Agency for the commencement of HPV vaccination in the country. The global HPV vaccine shortage, caused by the COVID-19 outbreak, has exacerbated the situation to the point where the vaccine, which was previously available through the private sector, is now unavailable.

Table 1: Approved HPV Vaccines and Serotypes covered.

HPV vaccine	Approved	Serotype Covered	Availability
Cervarix 2007	2006	HPV 16 AND 18	Not available on National program on Immunization
Gardasil	2007	HPV 6, 11, 16 and 18	Not available on National program on Immunization
Gardasil 9	2014	HPV 6, 11, 16, 18, 31,33,45,52,58	Not available on National program on Immunization

Cervical cancer screening in Nigeria

Cervical cancer screening is the foremost public health intervention for cervical cancer control, which has dramatically reduced the burden of the disease in high-income countries (HICs). This success has not been replicated in low- and middle-income countries (LMICs) due to poor uptake of screening. In Ibadan, a cosmopolitan city in southwest Nigeria, only 13.5% of women studied have ever had cervical screening [14]. A systematic review of factors influencing cervical cancer screening practice among female health workers in Nigeria shows that despite the high level of knowledge and positive attitude towards screening, uptake ranged from 3% to 54.1% in the 15 studies reviewed [9]. HPV DNA testing is currently the World Health Organization's preferred screening method, which also allows for self-testing [17]. p16 INK4a immunohistochemistry helps improve the specificity of HPV testing. The high cost of HPV screening out of pocket makes it a huge challenge, especially given the low background uptake of the prior screening options of VIA and cytology [16-18]. Other factors influencing screening uptake include low awareness levels, low-risk perception, low socioeconomic status, lack of female providers, fear of positive screening results, partner's influence, and sociocultural norms [18-21]. Although the National Health Insurance Scheme (NHIS) covers cytology-based cervical screening, the coverage is mainly for those in the formal sector. Therefore, to attain the WHO elimination target of 70% of women being screened with a high performance test two times per life by 35 and 45 years of age, there is a need for coverage in the informal sector and to include HPV DNA testing in the NHIS screening options.

WHO recommendation for the treatment of preinvasive and invasive cervical cancer

The success of cervical cancer screening in reducing cancer burden is dependent on its coupling to an effective treatment of preinvasive diseases identified. The main treatment options include cryotherapy, thermocoagulation, Loop Electrosurgical Excision Procedures (LEEP), and cone excision. These services are lacking in many facilities where screening is done, leaving patients with no option for treatment other than a hysterectomy, which is an over-treatment in many cases. The management of invasive cer-

vical cancer is stage-dependent. Early cervical cancers are equally amenable to radical hysterectomy with pelvic lymph node dissection and chemoradiation while locally advanced diseases are managed with chemoradiation. In Nigeria, there are few cancer centres, and there is a dearth of trained specialists for radical hysterectomy [18]. The situation with radiotherapy is more grave, with only one machine per 19.4 million people, compared to the one machine per 250,000 people available in high-income countries. The International Atomic Energy Agency has identified Nigeria as the nation with the biggest gap in radiotherapy machine availability [23]. In the same vein, there are limited trained radiotherapy staff, old radiotherapy machines that break down incessantly, as well as poor infrastructure support [24]. With about 50-60% of patients requiring radiotherapy, improvements in radiotherapy services will be essential to achieving the 90% treatment target [19].

Palliative care in Nigeria

Palliative care offers cervical cancer patients an improved quality of life if they present when the cure is unattainable. 80% of patients with cancer in Nigeria will require this form of care [25]. Unfortunately, palliative care is still in its infancy, with many teething challenges [25]. There is poor awareness of palliative care services, a lack of skilled palliative care practitioners, and limited access to opioids [26]. A Hospice and Palliative Care policy document on palliative care was released on October 26, 2021, which is aimed at improving the current state. The WHO target for cervical cancer elimination is 90% access to palliative care [16].

Cancer registries and data management in Nigeria

Cancer registries are vital for monitoring the incidence, prevalence, and mortality of cancer and the effectiveness of national cancer prevention programs. They serve as the warehouse for data for basic research and etiological studies [27]. In Nigeria, the cancer registries were moribund for decades with no contributions to cancer incidence in five continents (CIV). Volume 7 | Issue 1 | 4 of 5.

However, this has changed with the establishment of the Nigerian National System of Cancer Registries (NSCR), where there is now central coordination of the activities of population-based

cancer registries (PBCR) as well as hospital-based registries in Nigeria, strengthened existing registries, established new registries, compiled and analyzed data, and made these freely available to researchers and policymakers [27].

Cervical cancer advocacy and support groups

Nigeria is not lacking in passion to eliminate cervical cancer and alleviate suffering. There are several groups involved in prevention advocacy and the support of women with cervical cancer. They come under the umbrella of the Nigeria Cancer Society, and they actively engage to improve awareness, outreach cervical cancer screening, and help in patient navigation. These include the End Cervical Cancer Nigeria Initiative, the Dorcas Cancer Foundation, the Medicaid Cancer Foundation, the Raise Foundation Minna, and Run For a Cure Africa. There is a need for collaboration among these NGOs to streamline activities in the cervical cancer space.

Cancer care funding in Nigeria

Cancer care constitutes a huge financial burden, especially in a country like Nigeria where the poverty index is high. The cost has been identified as a significant cause of late presentation. Almost all cancer patients will suffer financial toxicity in the cost of treatment. In September 2021, the government began the implementation of the Nigeria Cancer Health Fund, which is a treatment fund created to help people with breast, cervical, and prostate cancer in six health institutions access up to 2 million nairas (approximately \$4,865) in medication, chemotherapy, and radiation therapy services.

Clinical trials

The care gap in cervical cancer is best demonstrated by the disparity in clinical trials between developed and developing countries. A search on clinical trials.gov returned 3402 trials from the United States and 369 from the United Kingdom, 116 from India, and a paltry three completed studies in Nigeria.

Table 2: Selected Countries and Clinical Trials in Cervical Cancer.

Country	Recruiting clinical trials	Completed clinical trials	Total studies
United States of America	762	1546	3414
United Kingdom	102	136	271
India	15	44	115
Nigeria	NIL	3	3

In summary, Nigeria still needs dedicated efforts to attain the elimination target. Achieving the 2030 targets of the WHO Cervical Cancer Elimination Program (90-70-90) will require multisectoral collaboration and the systematic implementation of policies and plans in Nigeria. While there is a baby step toward elimination, the milestones can be attained through partnerships with the WHO and NGOs from other developed countries, especially the USA. The main objective of this mini-review is to gather information on all the required steps worldwide, compared with the availability in Nigeria. Improving the epidemiological study, such as actual inci-

dence and death rates in the urban and rural areas of Nigeria; enhancing the screening process, training the health care workers on screening, diagnosing the rates of HPV positive and negative cases, working on the health care sectors to improve and plan on getting vaccination through the WHO and other organizations; enhancing access to treatment, working globally to get access to or register for clinical trials available in Nigeria are required. Once some of the goals are achieved, there is a great hope of being on track toward eliminating cervical cancer in Nigeria.

Methods

Study design

This is a longitudinal and prospective study. Papanicolaou stained cervical smears sample slides were prepared at the histopathology laboratory, National Hospital Abuja. The samples were processed for "Koilocytes" identification which could present various grades and stages of the cervical cancer on the slides when viewed under x 10 oil immersion objective.

Hypotheses

Hypothesis 1

- **H0:** There is no significant difference in the incidence of cervical cancer among patients attending oncology clinics at the National hospital Abuja and those that were cervical cancer free.
- **Ha:** There is significant difference in the incidence of cervical cancer among patients attending oncology clinics at the National hospital Abuja and those that were cervical cancer free.

Table 3

Number of cervical samples processed	Number of cervical samples confirmed for koilocytes	Number of cervical samples not confirmed for koilocytes
9	2	7
14	2	12
18	7	8
6	4	2
9	NIL	9
7	4	3
18	8	10
9	5	4
7	3	4
4	NIL	4
2	1	1
4	NIL	4
107	36	68
107/12= 8.92	36/12 = 3	68/12 = 5.7
	= 33.6 PER 100	
Combined variance SD ²	80 +130.68 / 22 = 9.57	
Standard deviation, SD	3.1	
Standard error, SE	SD $\sqrt{(1/12 + 1/12)} = 3.1 \sqrt{0.16} = 1.24$	
T22 =2.2 AT 22 degrees of freedom	Mean of cervical koilocytes - Mean of non cervical koilocytes/SE	
	3- 5.7/1.24 = -2.2	
T tabulated < T Calculated at 22 degrees of freedom	T TAB, 2.07 < T CAL 2.2 significant	
	there was a significant difference in cervical koilocytes "cancerous" and those non cancerous at 95% confidence limits (p < 0.05)	
	In other words those cancerous were significantly lower than those not cancerous;	
	We had no enough evidence to reject the alternative hypothesis, Ha, so it was retained	



Figure 1: Number Of Cervical Samples Processed Versus Confirmed Cervical Koilocytes (Cervical Cancer Indication) Cases.

Hypothesis 2

- H0:** There is no significant difference among oncology clinic attendees that had knowledge awareness in the cervical cancer and those that had no knowledge awareness of cervical cancer among same group of patients.
- Ha:** There is significant difference among oncology clinic attendees that had knowledge awareness in the cervical cancer and those that had no knowledge awareness of cervical cancer among same group of patients.

Description of concerned awareness	Synopsis	Awareness level %	Synopsis	Non-Awareness level %
Early detection of cervical cancer involves regular pap's smear examination and HPV types detection	C1	70	N1	30
Early HPV Vaccination awareness among teenagers young ladies below	C2	80	N2	20
Human Papilloma Virus -as the meaning of HPV	C3	75	N3	25
Serious and rigorous HPV early Vaccination program in Nigeria	C4	10	N4	90
High rates of out of pocket payment among oncology patients with cervical cancer	C5	82	N5	18
Cervical cancer could metastasize	C6	90	N6	10
Keeping multiple sexual partners is one of the risk factors of cervical cancer	C7	100	N7	100
Wart inducing virus is the common name for HPV	C8	100	N8	0
Nigeria falls as one of the least countries in the world that show lukewarm attitude in early HPV vaccination and prevention programs	C9	95	N9	5
HPV Types 16 and 18 are the most relevant in the cervical cancer development	C10	80	N10	20
Koilocytes detection are used as diagnostic means of HPV in Pap's smear examination	C11	70	N11	30
HPV detection in women is from > 35 years and above in women	C12	100	N12	0
Age range for the commencement of cervical cancer HPV Vaccination <15 years and above for young and old women	C13	100	N13	0

Government enforcement of HPV education on all adults oncology and non oncology female patients especially	C14	100	N14	0
Examples of silent cancers are cervical, colorectal, ovarian and lung cancers	C15	75	N15	15
There must be compulsory cervical screening for all women	C16	95	N16	05
Religious bias opposes compulsory breast screening	C17	100	N17	0
Advocacy for full Government financing of breast cancer management is a must	C18	100	N18	0
Advocacy for cervical cancer management in various hospitals is a must for National Health Insurance Scheme	X19	100	N19	0
Establishing oncology centers of excellence in all the thirty six states of the federation is a task that must be accomplished and endorsed by the government	C20	100	N20	0
Free specialist training in the fields of oncology for more health care providers is also a task that must be accomplished and endorsed by the government	C21	100	N21	0
Government advocating for full scale financing of all types of cervical cancers and other cancers	C22	0	N22	100
Immediate relieve by government of oncology patients from the heavy financial burden of cervical cancer from out of pocket expenses through complete saddling and shouldering of such responsibilities on National Health Insurance Scheme NHIS	C23	0	N23	100
Government establishing oncology centers of excellence in all the thirty states of the Nigerian Federation	C24	0	N24	100
Free training for all current and future intending health care providers in oncology throughout the health institutions in the Nigerian federation	C25	0	N25	100
Total		1882		768
Mean		75.28		30.72
Variance, SD ²		1047.79		1601.29
Standard deviation, SD		32.37		40.02
Combined variance, SD ²		1047.79+1601.29/48 =55.19,		
SD		√ 55.19 =7.43		SD= 7.43
Standard Error, SE AT 48 Degrees of freedom		SD √ 1/N1 +1/N2 = 7.42 √ 1/25 +1/25 = 7.42√0.08 2.09		SE= 2.09
T48 = Mean of non awareness - Mean of awareness/SE		30..72 -75.28/2.09 = -21.3 -44.56/10.19 = - 21.3		T48 = -21.3
T 48 TAB, 2.02 < T48 CAL, 21.3 for two way test	Level of awareness of knowledge on cervical cancer is significantly higher than non- awareness level among patients attending oncology clinics at the national hospital Abuja, P < 0.05 (95% Confidence Limits.)			

Table 4: Cervical cancer knowledge awareness analysis among sampled oncology patients.

Ha: Level of awareness of knowledge on cervical cancer is significantly higher than non-awareness level among patients attending oncology clinics at the national hospital Abuja. We had no enough reason/evidence to reject the alternative hypothesis, hence it was

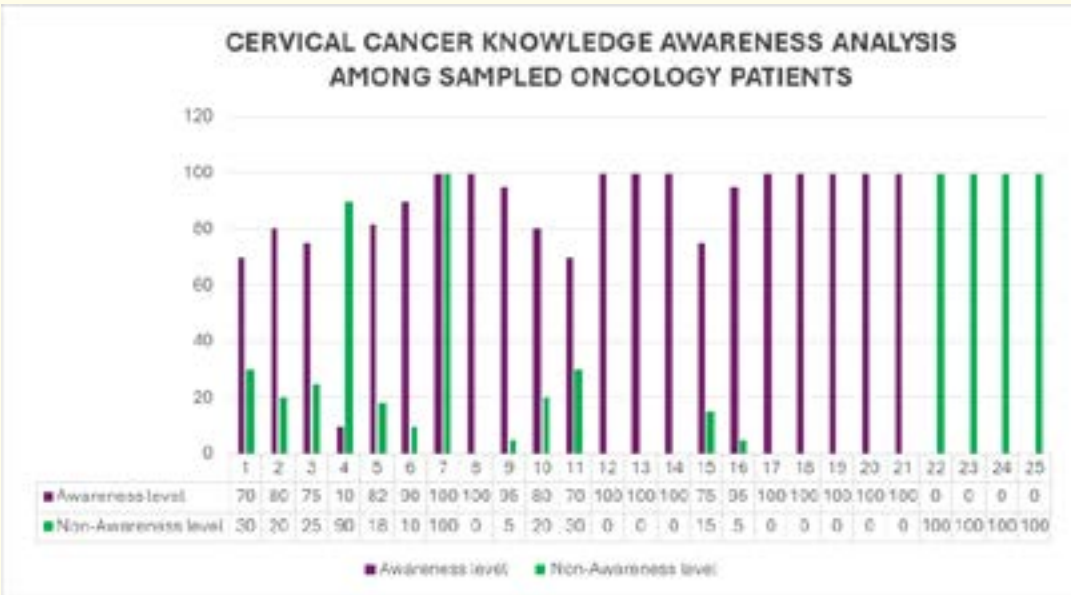


Figure 2

Discussion

A Papanicolaou stained cervical sample smear from a patient was confirmed positive for cervical cancer if it showed the presence of Koilocytes using x100 oil immersion objective of the binocular microscope. From January to December we prospectively assayed the following quantities of cervical smear samples, 9, out of which 2 were koilocyte positive. In February, we assayed 14 samples in which 2 were positive for cervical cancer. In March, we assayed 18 samples in which 7 were positive for cervical cancer. In April, we assayed 6 samples in which 4 were positive for cervical cancer. In May, we assayed 9 samples in which none were positive for cervical cancer. In June, we assayed 7 samples in which 4 were positive for cervical cancer. In July, we assayed 18 samples in which 8 were positive for cervical cancer. In August, we assayed 9 samples in which 5 were positive for cervical cancer. In September, we assayed 7 samples in which 3 were positive for cervical cancer. In October, we assayed 4 samples in which none were positive for cervical cancer. In November, we assayed 2 samples in which 1 was positive for cervical cancer. In December, we assayed 4 samples in which none was positive for cervical cancer.

The annual incidence rate of cervical cancer among the oncology patients were far lower than the incidence of non-cervical cancer cases as we obtained values of 33.6% for cervical cancer. The calculated t test value was also lower for cervical indicating high level of significance of difference between lower incidences of confirmed cases of cervical cancer and non-cervical cancer cases that were higher in number at 95% confidence levels ($P < 0.05$). These findings agreed perfectly with the work of other workers on cervical cancer and that of Ajayi, *et al.* 2019 and the paper of Jedy Agba, *et al.* 2015.

Conclusion

We advanced the reasons for these findings on the levels of awareness and non-awareness of cervical cancer, and also the extent of efforts by various stakeholders at early detection strategies. The extent of early HPV vaccination strategies/interventions for cervical cancer and free Papanicolaou smear screening for women at risk and even those not at risk of cervical cancer, had played a principal/major role in drastically reducing its annual incidence rate.

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